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| Phone: | 571-272-4878 | Pages: | 19 (inc. cover page) |
| Re: | U.S. Patent Application 10/750,418 | Serial #: | S6389 |

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OFFICIAL COMMUNICATION

Dear Examiner Lu:

Please find enclosed an Amendment for U.S. Patent Application 10/750,418. If you have any questions, I may be reached at the above telephone number.

Best regards,

Christopher J. Cronin
Reg. No. 46,513

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|------------------------|-------------------|
| Application Number | 10/750,416 |
| Filing Date | December 31, 2003 |
| First Named Inventor | Martin THERIAULT |
| Art Unit | 3749 |
| Examiner Name | Jiping Lu |
| Attorney Docket Number | S6389 |

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| | | | |
|--------------|---|----------|--------|
| Firm Name | Air Liquide | | |
| Signature |  | | |
| Printed name | Christopher J. Cronin | | |
| Date | May 2, 2006 | Reg. No. | 46,513 |

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Application No.: 10/750,418 **RECEIVED
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Appellant: Martin THERIAULT **MAY 02 2006**
Filed: December 31, 2003
Title: DRY CABINETS FOR USE IN MOISTURE SENSITIVE
DEVICE MANAGEMENT IN ELECTRONICS
MANUFACTURING
TC/A.U.: 3749
Examiner: Jiping Lu
Docket Number: Serie 6389
Customer No.: 40582

APPELLANT'S BRIEF

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Brief is filed pursuant to the Notice of Appeal filed March 3, 2006.

**Appellant's Brief
U.S. Patent Application Serial No. 10/750,418**

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**Appellant's Brief
U.S. Patent Application Serial No. 10/750,418**

1. Real Parties In Interest

The real party in interest Air Liquide America L.P. the assignee of the entire title and interest in and to the subject application by virtue of an assignment recorded at the U.S. Patent and Trademark Office at: Reel 014403, Frame 0019.

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2. Related Appeals and Interferences

There are no related Appeals or Interferences.

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3. Status of Claims

Claims 1, 3-9, 11-12, 14-15, 17-18, and 20 are on appeal. As of the Advisory Action dated February 3, 2006, claims 1, 3-9, 11-12, 14-15, 17-18, and 20 were rejected under 35 U.S.C. §103(a) and claim 13 was allowed. A complete copy of the current claims appears in the attached Appendix.

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4. Status of Amendments

Appellant's After-Final Amendment dated January 12, 2006 was entered by the Examiner on February 3, 2006. However, the pending claims as listed in the attached Appendix have not changed relative to entry of that After-Final Amendment.

**Appellant's Brief
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5. Summary of the Claimed Subject Matter

The claims on appeal are directed to a method of storing surface mount devices in the interior of a cabinet and maintaining a low relative humidity in the interior of the cabinet, as well as a cabinet therefor.

In particular, independent claim 1 is directed to a cabinet having an enclosed interior space for storing surface mount devices in an environment of low relative humidity; the cabinet comprising: a nitrogen generator associated with the cabinet and transportable therewith (Specification page 7, lines 18-20; page 8, lines 2-3), means to receive a supply of compressed air communicating with the nitrogen generator (Specification page 8, lines 1 and 6-7) and means to direct a dry gas stream from the nitrogen generator into the interior of the cabinet (Specification page 9, line 9) to maintain a low humidity environment in the interior space (Specification page 16, lines 14-15). Claims 3-9, 11-12, and 14 depend from claim 1 and thus include all of the limitations of this claim.

Also, independent claim 15 is directed to a method of storing surface mount devices in the interior of a cabinet and maintaining a low relative humidity in the interior of the cabinet, the method comprising the steps of: directing a supply of compressed air to a nitrogen generator associated with the cabinet and transportable therewith (Specification page 7, lines 18-20; page 7, line 25 through page 8, line 2), forming a dry nitrogen gas stream from the nitrogen generator (Specification page 9, lines 24-26; page 10, lines 4-8; page 14, line 25 through 15, line 1) and directing the dry nitrogen stream into the interior of the cabinet (Specification page 9, line 9) so as to maintain a low relative humidity in the interior space of the cabinet while storing the surface mount devices (Specification page 16, lines 14-15). Claims 17-18 and 20 depend from claim 15 and thus include all of the limitations of this claim.

**Appellant's Brief
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6. **Grounds of Rejection to be Reviewed on Appeal:**

The issue presented on Appeal is:

- A. Whether claims 1, 6-9, 11-12, 14-15, 18, and 20 are properly rejected under 35 USC 103(a) as obvious over U.S. Patent 6,221,163 (Roberson) in view of U.S. Patent 6,615,908 (Bosher).
- B. Whether claims 3-5 and 17 are properly rejected under 35 USC 103(a) as obvious over Roberson in view of Bosher and U.S. Patent 5,439,507 (Barbe).

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7. Arguments:

A) 35 U.S.C. §103(a) states (in pertinent part):

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains..."

The Supreme Court stated that the obviousness or non-obviousness of subject matter is determined in view of the scope and content of the prior art, the differences between the prior art and the claims at issue and the level of ordinary skill in the pertinent art. Graham v. John Deere, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966) See M.P.E.P. §2141. Secondary considerations, such as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. Id. at 17-18, at 467; See M.P.E.P. §2141.

The following tenets of patent law must be adhered to when applying 35 U.S.C. §103:

The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination. Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143, 229 U.S.P.Q. 182, 187 n.5 (Fed. Cir. 1986); See M.P.E.P. §2141. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); See M.P.E.P. §2142. The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention. Id., at 1143, at 187 n.5; In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992); In re Rouffet, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998); In re Dembicza, 175 F.3d 994, 999 (Fed. Cir. 1999); See M.P.E.P. §2141. The references

Appellant's Brief
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must either be in the field of the inventor's endeavor or be reasonably pertinent to the particular problem with which the inventor was involved. In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 658-659, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992); See M.P.E.P. §2141.01(a).

B: Claims 1, 6-9, 11-12, and 14 are improperly rejected under 35 USC 103(a) as obvious over Roberson in view of Bosher.

Claim 1 is directed to a cabinet having an enclosed interior space for storing surface mount devices in an environment of low relative humidity. Claim 1 requires a cabinet comprising: a nitrogen generator associated with the cabinet and transportable therewith, means to receive a supply of compressed air communicating with the nitrogen generator and means to direct a dry gas stream from the nitrogen generator into the interior of the cabinet to maintain a low humidity environment in the interior space. Claims 6-9, 11-12, and 14 also require all of the limitations of this claim.

Claims 1, 6-9, 11-12, and 14 are improperly rejected because: a) there would be no motivation for one of ordinary skill in the art to combine the teachings of Roberson and Bosher in the manner suggested by the Examiner, and b) Bosher is non-analogous art.

In the rejection, the Examiner states that Bosher teaches a system and method of its use similar to that of Roberson. The Examiner then goes on to describe specific supposed similarities between Bosher and Roberson. In particular, the Examiner ties together disparate alleged teachings of Bosher regarding: A) supplying nitrogen and utilizing dessicant elements (column 12, line 12, and column 13, line 65 through column 14, line 2); and B) controlling the humidity within a cabinet (column 4, lns. 7-8, and column 12, lines 1-2).

However, Bosher ties together the supply of nitrogen to controlling the atmospheric gas composition within a container (column 12, line 12 through column 13,

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line 44). The idea of controlling humidity is conspicuously absent from this portion of the Bosher specification describing atmospheric gas composition control.

On the other hand, Bosher ties together specific equipment to controlling humidity. Towards this end, a water trap is used to collect some or all condensation within the container in a tray, a heater is used to heat the collected condensation so as to raise the humidity within the container (column 4, lines 5-8 and 12-14), and fans are slowed down when the product temperature is at a desired level (column 11, lines 27-30). The idea of using a nitrogen generator is conspicuously absent from this portion of the Bosher specification describing humidity control.

Appellant respectfully asserts that the Examiner has improperly plucked a motivation from the humidity control teachings in order to justify a rejection in which the nitrogen generator teachings of Bosher are used to modify Roberson. Appellant submits that one of ordinary skill in the art would not have been so motivated to modify Roberson in the manner suggested by the Examiner because, without a description linking the supposed benefit of the nitrogen generator in Bosher to humidity control, one of ordinary skill in the art would have found the nitrogen generator teachings irrelevant to controlling humidity in the Roberson SMIF.

Moreover, Bosher teaches atmospheric gas composition control for two situations: 1) for storage or transport of produce for longer periods of time, and 2) for produce that is more susceptible to high rates of senescence (column 12, lines 16-19). With respect to the first situation, Appellant asserts that one of ordinary skill in the art would not have found any motivation for using the atmospheric gas composition control teachings of Bosher in the SMIF of Roberson because Roberson is not concerned with produce, transport of produce, storage of produce, or produce susceptible to high rates of senescence. Appellant respectfully asserts that one of ordinary skill in the art would likely consider senescence to be associated only with dying tissue, not inanimate objects.

Even if one of ordinary skill in the art would look to Bosher to control the atmosphere composition in Roberson (which Appellant strenuously argues such a one

**Appellant's Brief
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would not), the Examiner still has not shown any motivation to select an application using a nitrogen generator over other alternative methods of controlling the gas atmosphere. The use of a nitrogen generator is but one type of five alternative ways taught by Bosher for controlling the atmosphere composition: 1) the use of a nitrogen generator; 2) chemicals (column 12, line 37); 3) plastics (column 12, line 37); 4) other types of fibers (column 12, line 37); and 5) active films (column 12, line 54). Appellant submits that selecting a nitrogen generator over the other alternatives would have been nothing more than an arbitrary choice since the Examiner has not shown any benefit to using the nitrogen generator to the exclusion of the others.

Even if one of ordinary skill in the art would have been motivated to use the nitrogen generator over the four other alternatives, Roberson already discloses the use of house nitrogen (Figure 11). The Examiner has not shown why one of ordinary skill in the art would have found house nitrogen to be disadvantageous while the nitrogen generator of Bosher advantageous so as to substitute the house nitrogen source with a nitrogen generator.

Also, Appellant respectfully asserts that Bosher is not in the same field of endeavor as that of the invention. Bosher is directed to transporting, storing or readying for storage, fresh produce. It is also directed to maintaining a minimum humidity in the atmosphere surrounding the fresh produce. On the other hand, claims 1, 6-9, 12, 14-15, 18, and 20 are directed to dry storage of SMDs. Appellant also asserts that Bosher was not reasonably pertinent to the particular problem with which the inventor was concerned. The inventor was concerned with avoiding moisture-induced failures of surface mount devices at reduced costs in comparison to relatively expensive installations using a centralized nitrogen or dry air system. Appellant fails to see any disclosure in Bosher indicating that it was reasonably pertinent to the particular problem with which the inventor was concerned.

C. Claims 3-5 are improperly rejected under 35 USC 103(a) as obvious over Roberson in view of Bosher and further in view of Barbe.

**Appellant's Brief
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All of the arguments recited above as to the rejection of claims 1, 6-9, 11-12, and 14 equally apply to the rejection of claims 3-5. Also, Appellant submits that Barbe fails to cure the deficiencies of the Examiner's rejection of Roberson and Bosher as described above.

D. Claims 15, 18, and 20 are improperly rejected under 35 USC 103(a) as obvious over Roberson in view of Bosher.

Claim 15 is directed to a method of storing surface mount devices in the interior of a cabinet and maintaining a low relative humidity in the interior of the cabinet. Claim 15 requires the steps of: directing a supply of compressed air to a nitrogen generator associated with the cabinet and transportable therewith, forming a dry nitrogen gas stream from the nitrogen generator and directing the dry nitrogen stream into the interior of the cabinet so as to maintain a low relative humidity in the interior space of said cabinet while storing said surface mount devices. Claims 18 and 20 also require all of these limitations.

Claims 15, 18, and 20 are improperly rejected because: a) as explained in detail above, there would be no motivation for one of ordinary skill in the art to combine the teachings of Roberson and Bosher in the manner suggested by the Examiner, b) as explained in detail above, Bosher is non-analogous art, and c) the combination of Roberson and Bosher as suggested by the Examiner fails to disclose or teach all of the claim limitations, including a step of directing a supply of compressed air to a nitrogen generator.

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E. Claim 17 is improperly rejected under 35 USC 103(a) as obvious over Roberson in view of Bosher and further in view of Barbe.

All of the arguments recited above as to the rejection of claims 15, 18, and 20 equally apply to the rejection of claim 17. Also, Appellant submits that Barbe fails to cure the deficiencies of the Examiner's rejection of Roberson and Bosher as described above.

In view of the foregoing, it is submitted that the rejections of claims 1, 3-9, 11-12, 14-15, 17-18, and 20 should be reversed.

Respectfully submitted,



Christopher J. Cronin
Registration No. 46,513

Date: May 2, 2006
Air Liquide
5230 S. East Ave.
Countryside, IL 60513
Phone: (708) 579-7925
Fax: (708) 579-7801

**Appellant's Brief
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8. Claims Appendix

1. A cabinet having an enclosed interior space for storing surface mount devices in an environment of low relative humidity comprising; a nitrogen generator associated with said cabinet and transportable therewith, means to receive a supply of compressed air communicating with said nitrogen generator and means to direct a dry gas stream from said nitrogen generator into the interior of the said cabinet to maintain a low humidity environment in said interior space.
2. (cancelled)
3. The cabinet of claim 1, wherein said nitrogen generator comprises a membrane capable of separating air to form a concentrated nitrogen gas stream.
4. The cabinet of claim 3, wherein said membrane comprising a polymeric membrane.
5. The cabinet of claim 4, wherein said membrane is a hollow fiber polymeric membrane.
6. The cabinet of claim 3, comprising a plurality of said membranes
7. The cabinet of claim 1, wherein said nitrogen generator comprises a particulate adsorbent capable of adsorbing one or more components of air and form a concentrated nitrogen gas stream.
8. The cabinet of claim 7, wherein said concentrated nitrogen gas stream is formed by a pressure swing adsorption system.

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9. The cabinet of claim 1, further comprising a desiccator.

10. (cancelled)

11. The cabinet of claim 1, wherein said nitrogen generator is an integral part of said cabinet.

12. The cabinet of claim 11, containing a flow controller to vary the volume of said dry gas stream directed into the interior of said cabinet.

13. A cabinet having an enclosed interior space for storing surface mount devices in an environment of low relative humidity comprising: a desiccator, a nitrogen generator or both associated with said cabinet and transportable therewith, means to receive a supply of compressed air communicating with said desiccator or said nitrogen generator or both, and a storage means for storing said dry gas stream from said desiccator, said nitrogen generator or both and means to direct a dry gas stream from said storage means into the interior of the said cabinet to maintain a low humidity environment in said interior space.

14. The cabinet of claim 1, further including a filter to remove particulates from said compressed air received from said supply.

15. A method of storing surface mount devices in the interior of a cabinet and maintaining a low relative humidity in the interior of said cabinet comprising: directing a supply of compressed air to a nitrogen generator associated with said cabinet and transportable therewith, forming a dry nitrogen gas stream from said nitrogen generator and directing said dry nitrogen stream into the interior of said cabinet so as to maintain a low relative humidity in the interior space of said cabinet while storing said surface mount devices.

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16. (cancelled)

17. The method of claim 15, wherein said dry nitrogen gas stream is formed by membrane separation of said compressed air stream by said nitrogen generator.

18. The method of claim 15, wherein the relative humidity in the interior of said cabinet is maintained at 5% or less.

19. (cancelled)

20. The method of claim 15, wherein said nitrogen generator is an integral part of said cabinet.

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